

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Self Initiated Inspection

N546030868

FACILITY: MICHIGAN PAVING & MATERIALS CO		SRN / ID: N5460
LOCATION: 1600 N ELM ST, JACKSON		DISTRICT: Jackson
CITY: JACKSON		COUNTY: JACKSON
CONTACT: Michael Jackson , Division Manager		ACTIVITY DATE: 08/28/2015
STAFF: Michael Gabor	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Synthetic Minor / Opt-Out Source. Full Compliance Evaluation (FCE) and Inspection (PCE).		
RESOLVED COMPLAINTS:		

**Synthetic Minor / Opt-Out Source. Full Compliance Evaluation (FCE) and Inspection (PCE).**

### Facility Contact

**Mike Jackson – Division Manager, [mjackson@mipmc.com](mailto:mjackson@mipmc.com), (517) 787-5359 (office).**

### Purpose

On August 28, 2015, I conducted a self-initiated inspection, unannounced, of the Michigan Paving and Materials Company (MPMC) facility in Jackson. The purpose of the inspection was to determine the facility's compliance status with the applicable federal and state air pollution regulations, particularly Michigan Act 451, Part 55, Air Pollution Control Act and administrative rules, and conditions of MPMC's Permit to Install 218-94A. This inspection was also prompted by an odor and visible emissions complaint received on August 24, 2015. This facility was last inspected on September 24, 2013.

### Facility Location

The facility is located north of the city of Jackson in Blackman Township. It is surrounded by commercial and residential areas on its western, southern, and eastern property lines, and Interstate 94 on its northern property line. Northeast Elementary School is located approximately 1,500 feet southeast of the facility.

### Facility Background

MPMC is a hot mix asphalt (HMA) plant and it does not use a warm-mix asphalt (WMA) process. The facility currently only burns natural gas (NG). It is permitted to burn propane, distillate oil, residential oil, blended fuel oil, or recycled used oil (RUO), per permit Special Condition (SC) 1.2. RUO has not been utilized in the last 6 to 7 years because of its increased cost, making NG a more financially economical fuel choice.

The plant consists of aggregate conveyors, a 650 ton per hour dual drum dryer, a rotary mixer and a fabric filter dust collector / baghouse (EUHMAPLANT). The plant yard consists of fugitive dust sources, such as plant roadways, material storage piles and material handling operations (EUYARD). There are liquid asphalt storage tanks (EUACTANKS) and silos that hold the asphalt product after it has been mixed (EUSILOS). All of these components / emissions units are organized under flexible group FGFACILITY.

**MPMC 2014 Michigan Air Emissions Reporting System (MAERS) reported: 16.51 tons**

CO, 5.12 tons NO<sub>x</sub>, 2.43 tons PM, 4.1 tons VOC, 879.27 pounds SO<sub>2</sub>, and 0.03 pounds lead. These reported emissions appear to be in compliance with permit specified limits.

### Regulatory Applicability

The facility is a Synthetic Minor / Opt-Out Source for carbon monoxide (CO) and for hazardous air pollutants (HAPs). MPMC accepted CO and HAPs emission limits in order to remain below major source emission thresholds. The facility is regulated by Permit to Install (PTI) 218-94A and is subject to 40 CFR 60 Subpart A and I, which are the General Provisions of Standards of Performance for New Stationary Sources (NSPS) and the Standards of Performance for Hot Mix Asphalt Facilities, respectively. The facility reports its emissions to MAERS and is designated as a Fee Category II source.

### Arrival & Facility Contact

Visible emissions or odors were not observed upon my approach to the facility via Elm Avenue. I arrived at approximately 8:50 am, proceeded to the facility office to request access for an inspection, provided my identification, and asked if Mike Jackson (MJ) was available. A pre-inspection conference was held with MJ, during which a copy of the MDEQ brochure: *Rights and Responsibilities Environmental Regulatory Inspections* was provided. I informed MJ of my intent to conduct a facility inspection and to review the various records required by their permit. MJ extended his full cooperation during the inspection, accompanied me during the full duration of the inspection, and fully addressed my questions.

### Emission Unit / Flexible Group Details

#### Emission Unit Identification

Emission Unit ID	Emission Unit Description	Stack Identification
EUHMAPLANT	Hot mix asphalt (HMA) facility including: Aggregate conveyors 650 tons per hour dual drum dryer and mixer Fabric filter dust collector	SVHMAPLANT
EUYARD	Fugitive dust sources including: Plant roadways Plant yard Material storage piles Material handling operations (excluding cold feed aggregate bins)	Fugitive Dust
EUACTANKS	Liquid asphalt cement storage tanks	N/A
EUSILOS	Hot Mix Asphalt (HMA) paving material product storage silo	N/A
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.		

### Flexible Group Identification

Flexible Group	Emission Units Included in Flexible Group	Stack Identification
FGFACILITY	All process equipment at the stationary source including equipment covered by other permits, grand-fathered equipment and exempt equipment.	N/A

#### Pre-Inspection Meeting

During the pre-inspection meeting, MJ provided a brief history of the facility, including past, public concern regarding its construction. Numerous public meetings and open houses were held by the facility to reassure the public's concerns and to answer their questions. MJ stated that the facility is well aware of its location and strives to be a "good neighbor" by swiftly responding to and resolving odor complaints (substantiated by past, resolved odor complaints received by the Air Quality Division (AQD) for this facility). MJ acknowledged that the facility's process is susceptible to cold air inversions that trap asphalt odors during cool mornings until it lifts at about 10 – 11 am. MJ also offered his assistance to work with staff to resolve and address any future complaints received by the Air Quality Division (AQD).

MJ continued to describe the facility's peak production of about 500,000 tons of hot mix asphalt (HMA) during the 1990's, which is below the 895,000 ton limit imposed by SC 1.6. Currently, plant production is between 200,000 – 250,000 tons of HMA a year. Generally, the facility produces HMA sometime between 6 am and Noon. The plant's operational year generally begins May 1<sup>st</sup> and concludes in late-November. Maintenance activities are generally conducted in early March, before the annual, facility startup.

I asked MJ regarding the facility's voided PTI 218-94A, which was to cover a proposed conversion from a dual drum to a counter-flow drum dryer operation. He replied that the facility explored the option to convert to a counter-flow drum dryer operation because of its improved energy efficiency and reduced odor generation design, but required an approximate 1.6 million dollar investment. The facility instead decided to maintain the current dual drum design and canceled the proposed conversion.

MJ also reviewed the process operation with me before conducting the facility walk-through portion of the inspection. He highlighted the various aggregate piles and conveyors, including those for recycled asphalt pavement (RAP). On occasion a portable crusher comes on site to further process the RAP so it may be introduced into the process. He discussed the dual drum dryer design and indicated the entry points for the aggregate, the RAP, and the liquid asphalt cement (LAC). The drum heats up the mixture to about 250 to 300 degrees Fahrenheit. The HMA is then transported via an enclosed, hot aggregate elevator and stored in 1 of the 8 onsite silos, each with a 300 ton storage capacity (EUSILOS), until loaded into transport trucks.

Together with MJ, I reviewed the general and special conditions of PTI 218-94A. We began with the conditions that apply to EUHMAPLANT. The facility has emission limits for particulate matter (PM), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen

dioxide (NO<sub>x</sub>), Lead (Pb), Benzene, Toluene, Ethyl benzene, Xylene, Naphthalene, Formaldehyde, Acrolein, Arsenic, Nickel, Sulfuric Acid (H<sub>2</sub>SO<sub>4</sub>), Manganese and Hydrogen Chloride. The records for the last 12 months indicate compliance with the 89.9 tons per year limit for CO, stipulated by SC 1.1d, and with the other pollutant emission limits (SCs 1.1a through 1.1s).

MJ confirmed that only natural gas fuel is used at the facility, which is consistent with SC 1.2. The facility does not burn any hazardous waste (HW), or HW-containing asbestos or asbestos tailings, per SC 1.3 and SC 1.4, respectively. The facility does not process more than 50 percent RAP on a monthly average, per SC 1.5. The records reviewed for the last 12 months indicated the highest amount of RAP used was 35.64% in September 2014. The facility may not produce more than 895,000 tons of HMA paving materials per 12-month rolling time period, per S.C. 1.6. The records reviewed for the last 12 months indicated that the highest HMA production was 250,470 tons in November 2014, based on a 12-month rolling time period. The facility may not produce more than 650 tons of HMA paving materials, per hour based on a daily average, per SCs 1.7. The records reviewed for the past 12 months indicate that the highest, hourly HMA production rate of 345 tons / hour occurred on 6/10/2015.

MJ noted that the Michigan Department of Transportation (MDOT) limits RAP content to about 20-30% for roadway projects. As the RAP percent content increases, (1) less readily available asphalt binder must be used during production and (2) the final product becomes more brittle.

The permit contains the following Process / Operational Limits:

- 1.) SC 1.8: Fugitive emissions control for EUYARD in Appendix A. The facility provided records for 2014 and 2015 that indicate substantial compliance with the requirements of this Appendix.
- 2.) SC 1.9: Preventative maintenance program for the fabric filter dust collector (baghouse) in Appendix B. The baghouse controls particulate emissions from the HMA manufacturing process and is associated with EUHMAPLANT. It is situated prior to the stack associated with EUHMAPLANT. Particulates generated from the drum dryer and the HMA storage silos and loadout area (EUSILOS) are controlled by the baghouse before the flue gases exit the stack. Particulates generated by activities associated with EUSILOS are ducted back to the drum dry burner to be combusted. The facility provided records since 2008, and a review of activities for 2014 and 2015 indicate substantial compliance with the requirements of this Appendix. It was observed that the black light inspection findings were not clearly listed and that their recordkeeping include such information, per Condition 8 of this Appendix.
- 3.) SC 1.10: Compliance Monitoring Plan for RUO (Recycled Used Oil as fuel) in Appendix C. As noted above, the facility does not use RUO at this time.
- 4.) SC 1.11: Start-up, shut-down, malfunction abatement of emissions in Appendix D. The records provided by the facility indicate substantial compliance with the requirements of this Appendix.

The facility is required to maintain the efficiency of the drum mix burners to control CO emissions by fine tuning the burners, per SC 1.12. The permit requires the readings to

be less than 500 ppmv and is required to be taken a) upon start-up of each paving season, b) upon a malfunction of the drum dryer or its associated burner and c) after every 500 hours of operation using a handheld monitor, per SC 1.19. The records reviewed for the 2015 indicate a 336 ppm CO average of the 8 readings.

In order to operate, the fabric filter dust collector must be installed, maintained, and operated in a satisfactory manner, per SC 1.14. The plant operator monitors the pressure drop across the baghouse by visually checking the recorded information displayed in the operation's control room. The baghouse has a minimum pressure drop range between 2 and 10 inches of water column. The records for the last 12 months indicate a baghouse pressure drop within the limits stipulated by SC 1.14 (between 2 and 10 inches of water column).

The following testing requirements are on a may be required basis: verification and quantification of odor emissions (per SC 1.13; emission rates of the toxic air contaminants (TACs): acrolein, arsenic, benzene, ethyl benzene, formaldehyde, lead, manganese, naphthalene, nickel, sulfuric acid mist, toluene, xylene, and hydrogen chloride (Per SC 1.16); emission rates for PM and CO (per SC 1.17).

Initial testing was conducted on June 20, 2001, with acceptable results. Opacity was also included in the testing using Method 9. No additional testing has been required to date. The testing complies with the requirements of NSPS Subparts A (General Provisions, i.e. definitions) and I (Particulate matter not to exceed 0.04 gr/dscf or exhibit 20 percent opacity or greater).

We then discussed SC 3.1 for the EUACTANKS, which requires a vapor condensation and recovery system to be installed, maintained and operated properly when the tanks are in operation. This system captures emissions when LAC is delivered to the facility. There are four 50,000 gallons tanks, which are heated using a natural gas fired heater. MJ noted that the condenser component of the vapor condensation and recovery system is scheduled for replacement (Figure 1, as observed during the inspection) and that certain supply lines were recently patched until the lines are replaced during the facility shutdown period.

Next, we discussed permit conditions for EUSILOS. SC 4.1 requires an emission capture system for the top of each of the eight 300 tons capacity storage silo be installed, maintained, and operated properly during silo operation. SC 4.2 requires that emissions from the silo / truck load out area be controlled.

SCs 5.1a and 5.1b for FGFACILITY stipulate emission limits for each individual HAP of less than 8.9 tons per year and aggregate HAPs of less than 22.4 tons per year, respectively. The plant is required to calculate actual emission from the plant on a 12-month rolling time period, as determined at the end of each calendar month, per SC 5.2. Records reviewed for the last 12 months indicate compliance with the HAP emission limits stipulated by SC 5.1a and 5.1b.

### Onsite Inspection

MJ then escorted me as I conducted the onsite tour portion of the inspection. MJ first drove me around to observe and point out the various aggregate and RAP storage

piles. As we toured the EUYARD, I observed a well maintained area that appeared to be in compliance with S.C 1.9 and Appendix B (fugitive dust control requirements). I did not observe fugitive dust emissions from the EUYARD. However, I did note a strong, pungent asphalt odor that MJ attributed to the in-progress LAC delivery by a truck tanker. He also stated that the LAC odor is quite noticeable, but dissipates quickly.

MJ then pointed out the cold feed aggregate bins (Figure 2), the aggregate conveyers (Figure 3), the dual drum dryer and mixer (Figures 4 and 5), and the baghouse (Figure 6) that make up EUHMAPLANT. I did not notice any visible fugitive emissions from these components during the inspection.

MJ did point out an area where HMA material is discarded from the process during the drum dryer startup phase (Figure 7) as a potential source of limited, fugitive emissions. This first-produced HMA may have not been fully heated to specification, so it is later reused as RAP. During the inspection I did not notice this activity.

I observed some fugitive emissions escaping from the top of 1 HMA paving material product storage silo, which is a part of EUSILOS, and shared my observations with MJ. MJ indicated that the emissions may be due to certain batching operations, but he would have the operator inspect the system. I requested that he let me know what actions were taken to remediate the situation to ensure compliance with SC 4.1. MJ stated that the emissions should be captured and ducted back to the burner and combusted.

I was taken inside of the facility control room and observed various readouts and tracking systems used to monitor and gather required recordkeeping data. During the inspection, I observed a pressure drop readings of 4.07 inches of water column for the baghouse, which is within the stipulated range of S.C. 1.14.

I also observed the HMA truck load out area associated with EUSILOS and its emissions control system, as required by SC 4.2. The load out area consists of 2 enclosed booths (Scale 1 and Scale 2) that have openings on both ends to allow for the entry and exit of transport trucks and they also house truck scales. The silo loadout enclosure openings have a plastic / rubber curtain assembly that extend two to three feet downward to assist with the capture of fugitive emissions associated with load out activities. During the inspection, I noticed that the curtain was missing on scale 1 (Figure 8). I requested that it be replaced as soon as possible. MJ documented replacement with an emailed photograph on September 2, 2015 (Figure 9).

Emissions generated during a load out are drawn by a variable speed fan (an upgraded component installed in 2014) through duct openings located in the booth ceiling (Figure 10) and are ducted back to the drum dryer burner. I inquired whether the fan speed is displayed and / or monitored, and MJ showed me the fan's digital display that indicated a 30% draw speed. MJ explained that the draw speed can be increased, but at about 65%, it begins to reduce the dryer drum burner's performance.

During the inspection, I observed a truck load out and noted fugitive emissions escaping below the flap (Figure 11). I suggested to MJ that the flaps may need to be

expanded and / or the fan draw speed may need to be increased to improve the overall capture efficiency. He acknowledged that more may be done to improve the capture efficiency, such as increasing the fan draw speed to about 40%. MJ also stated that a few years ago, high speed roller doors were installed on both booths, but quickly failed due to jamming issues, etc. I indicated that the load out emissions control system could be improved and MJ expressed a commitment to review and address any identified deficiencies.

I then observed the stack (Figure 12) associated with EUHMAPLANT. Stack emissions appeared to be steam and no fugitive emissions were observed from the baghouse. I also observed the LAC storage tanks (EUACTANKS, Figure 13) and the associated vapor condensation and recovery system, as required by SC 3.1. As indicated above, I noticed a strong, pungent asphalt odor earlier during the inspection that MJ attributed to the LAC delivery. I noted the strong odor again as I observed the LAC tanker truck delivery and shared my concern with MJ.

### Post-Inspection Meeting

We proceeded back to MJ's office and held a brief post-inspection meeting. I summarized my main concerns, which included the observed fugitive emissions from the storage silos (EUSILOS) and the load out area, and the strong asphalt odor that was generated during the observed LAC delivery. MJ expressed his full cooperation and commitment to address the noted concerns. I thanked MJ for his time and cooperation, and departed the facility at approximately 11 am.

### Recordkeeping Review

I requested Recordkeeping / Reporting / Notification items stipulated by SC 1.23 a. through c. for the last 6 months, SC 1.24 a. through c. for the last 6 months, SCs 1.25 through 1.27 for the last 12 months, by Friday, September 4, 2015, close of business. To determine compliance with S.C. 1.24 d., 4 random days' worth of data from 2015 were provided. MJ indicated that Sue Hanf (SH), Environmental Engineer with Stoneco of Michigan, would provide the requested items, as she handles the facility's recordkeeping and emissions reporting to MAERS. She is also a certified visible emissions (VE) observer and conducts onsite VE readings when needed.

SH emailed all requested recordkeeping items to me by September 2, 2015, and included operational data for the years 2014 and 2015 (January to August). All provided recordkeeping items have been attached to this report. It appears that MPMC is maintaining complete records in an acceptable format.

### Compliance Summary

Based upon the visual observations and the review of the records, MPMC appears to be in compliance. However, a few compliance concerns were noted during the inspection (which were also shared during the post-inspection meeting) and during the recordkeeping review. A letter was mailed to the facility on September 14, 2015, listing my compliance concerns, and requested a resolution response by September 28, 2015. My compliance concerns include: (1) the observed fugitive emissions from the storage silos and (2) the load out area (EUSILOS), (3) the strong asphalt odor that was generated during the observed LAC delivery, and (4) a recordkeeping request to

include the black light inspection findings, per Condition 8 of Appendix B.

On September 24, 2015, MPMC provided a response (attached to this report) to my September 14, 2015 letter. I will follow up with MPMC, regarding a few items, during the next fiscal year.



Image 1(Figure 1) : Condenser component of the vapor condensation and recovery system, 8/28/15, 10:44 am.

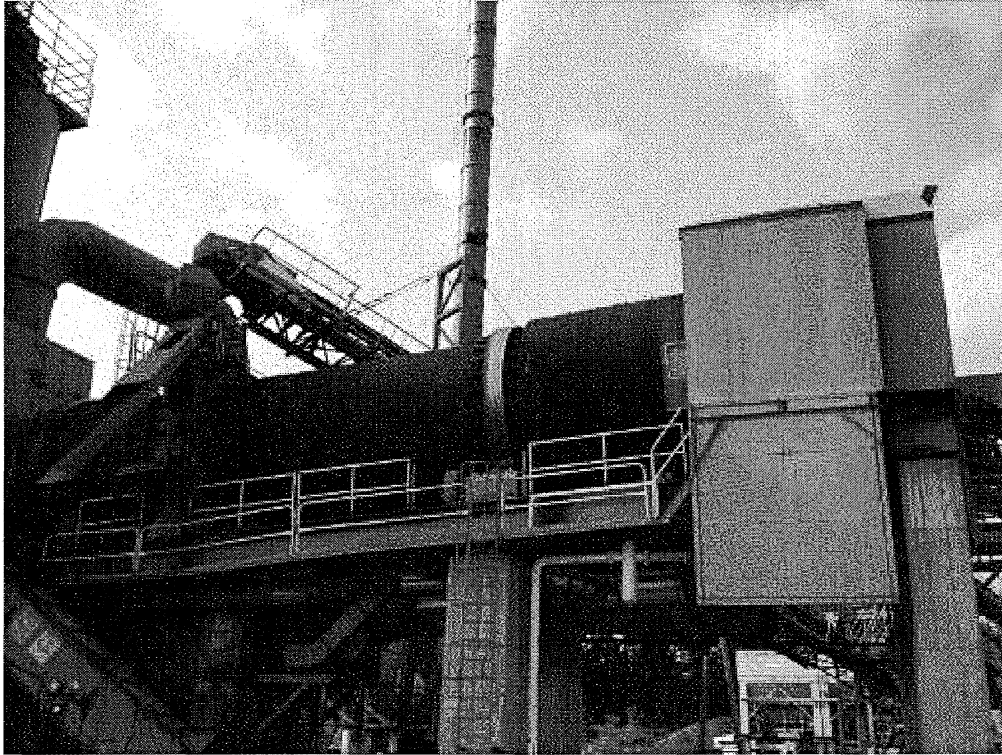




**Image 2(Figure 2)** : The cold feed aggregate bins, 8/28/15, 10:15 am.



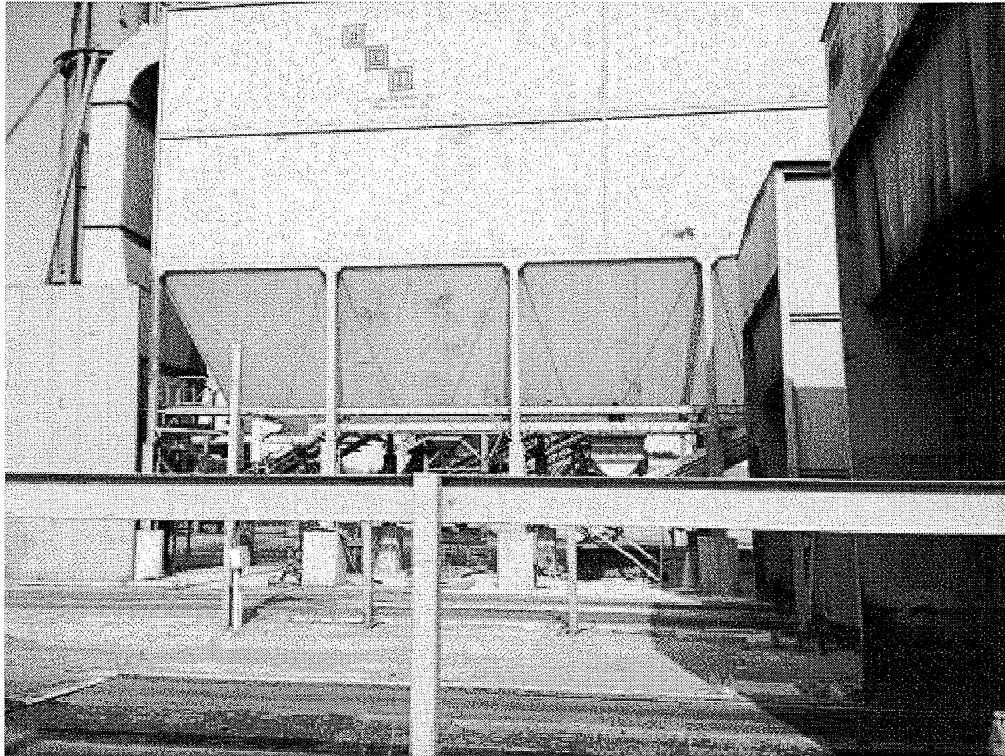
**Image 3(Figure 3)** : The aggregate conveyers, 8/28/15, 10:15 am.



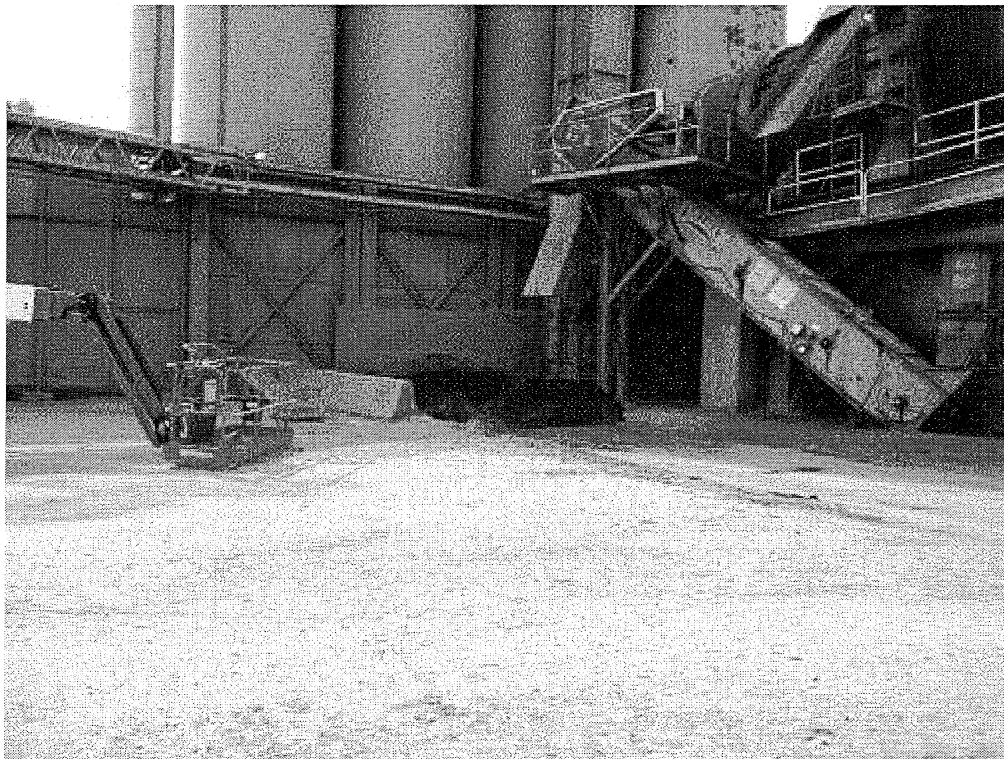
**Image 4(Figure 4)** : The dual drum dryer and mixer, 8/22/15, 10:15 am.



**Image 5(Figure 5)** : The dual drum dryer and mixer, 8/22/15, 10:15 am.



**Image 6(Figure 6)** : The baghouse, 8/22/15, 10:43 am.



**Image 7(Figure 7)** : Area where HMA material is discarded from the process during the drum dryer startup



phase, 8/22/15, 10:15 am.



**Image 8(Figure 8)** : Missing curtain on the silo loadout enclosure entrance, 8/22/15, 10:36 am.



**Image 9(Figure 9)** : The facility documented replacement of the silo loadout enclosure curtain with an emailed photograph on September 2, 2015.

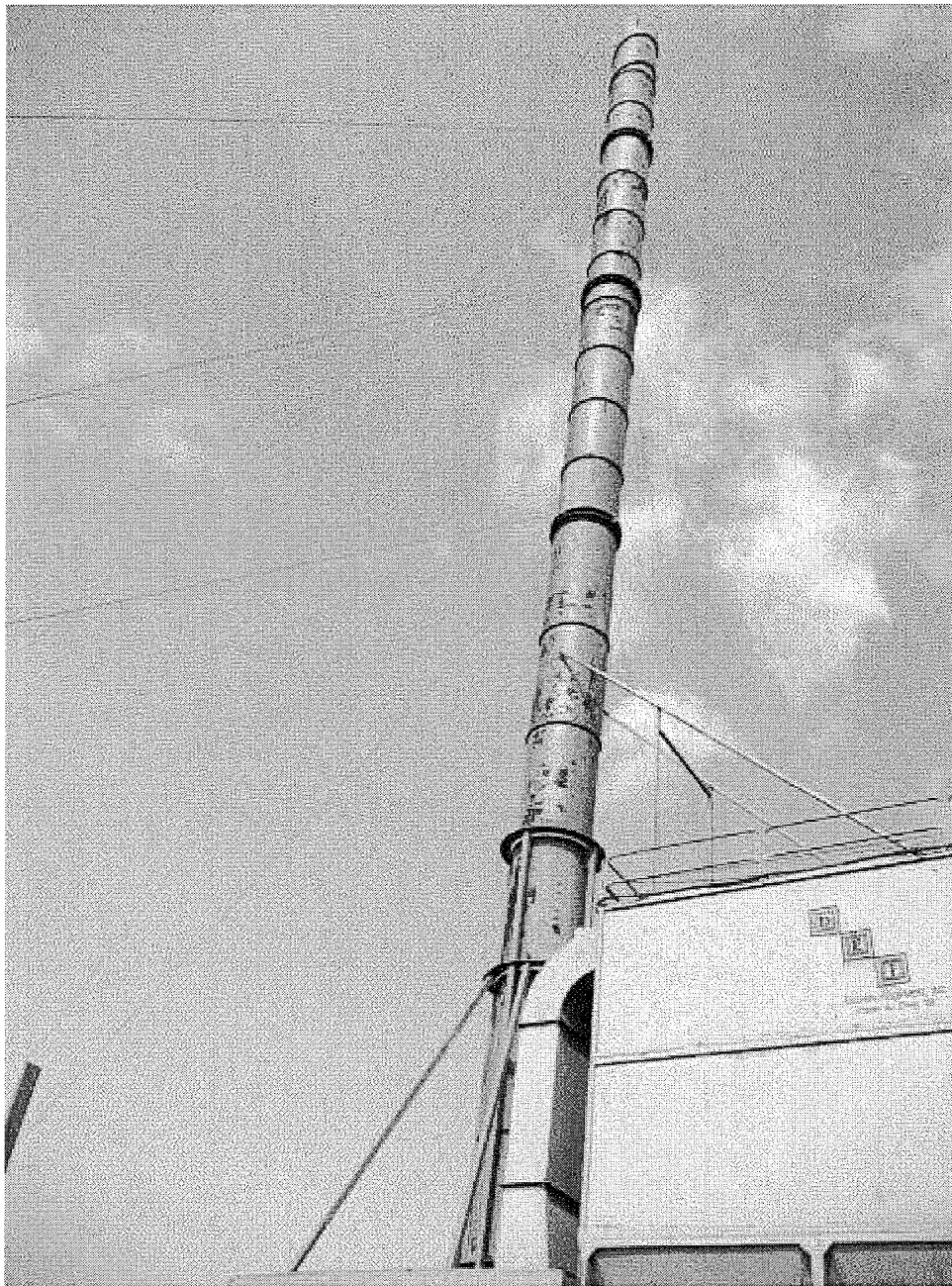


**Image 10(Figure 10)** : Interior of the loadout enclosure, 8/22/15, 10:20 am.



**Image 11(Figure 11)** : Fugitive emissions escaping below the enclosure curtain during a truck loadout, 8/22/15, 10:18 am.





**Image 12(Figure 12) :** The stack associated with EUHMAPLANT, 8/22/15, 10:43 am.





**Image 13(Figure 13) :** The liquid asphalt cement (LAC) storage tanks, 8/22/15, 10:42 am.

NAME Michael M. Gherz      DATE 9/29/15      SUPERVISOR [Signature]

